Volencors, and the Braring of the Phenomena on Vol senure Problems

Since the publication of the Second Part of the Vestiges of the Molton which I brought down the in the great lava fountains which descriptive account of the eruptions of were thrown up on the sides of Mauna Marina Lou and Kilauca to the close of the earthurst at Kau in February, 1887. | floor of the crater stops the steady rise Parameter James D. Dana has pub- of the layas in the column pressed up Indual a series of papers in the Ameri-Jarrent of Science, commencing in that floor for the lava to spout up in the January number of 1888, con- just as the water speuts from the mining a detailed history of those mozzle of a force-pump. It might be supposed that we should then see the niston of the force-pump.—the carth's piston of the force-pump—the earth's crust—descend; but a moment's revalved in the phenomena displayed flection tells us that such a movement by them. Having visited them in would be quite beyond the reach of Exporing Expedition under Commodum Wilkes, he and the American say 500 miles from Mauna Loa in Journal of Science, of which he has each direction-was concerned in this from the principal editor, have been piston-like action, and that the lava begg informed of, and have published to a cubic mile, it would only require lines time to time the accounts of, the | the descent of the crust to the distance seeds volcanic changes which have of a millionth of a mile, or a little over 6-100 of an inch (about 1-16) in half a century, an amount of subsidence which would be quite fusen-

Prestwich, and where he quotes Cordinated delerite. It is with much contistuation, therefore, that I can refer | contraction so minute and impercepbe his conclusions on these points, tible as one millemetre (0.0397 inch) scaring out, in the main, those at | would suffice to supply matter for five which I had arrived, in so far at least | hundred of the greatest known volthat he considered the cause of the canic cruptions." to some "quietly acting ascensive F.u.s. Oxford, 1886, page 216.

All this leaves room for the

can desired of Solone, Vol. axxvi.

fineme in this regard. To the effect of clastic vapors, howinto a situation where they can be acted upon by fresh water or by sea water; but there is nothing inconsistent with the principles of hydrostatics in the view that this force may raise the molton matter on which the

that too much influence had been sity of the solid crust and the molten ascribed by others to water, and this substratum whenever the latter has Green, of Honolulu, who refers part freely in a fissure; "a hydrostatic the movements in the lake to esproblem"—as Captain Dutton calls it caping atmospheric air, the air being -"of the simplest order." This supposed to be carried down by the simple problem seems, on Hawaii, to be as little complicated with the and to become confined in this and other ways, and be earried deeper for-

In this account of my interpretation of the facts observed, Professor Dana has omitted all reference to what I presented as the primary cause of the wise quietly ascending lava column; that is, to the effects of the violent convection currents which must neconsarily exist in a column of excessively hot liquid which derives its convection currents seem not only hisperically necessary effects, but to s also matters of observation at the Krimusa lava lakes. Wherever the main or most constant jetting occurs, there the lavas will be seen to be going down, not coming up, as they hould if the vapors from below raised them. This jetting action is most persistent at the sides of the lake, there it will often continue when all is guiet towards the middle. The have will often be seen to rise at one sade of the lake, but quietly and without agritation, whilst the current will steadily flow from that point of egress to some cavernous opening at the other side, where it may be seen to be going down; and here, let it be oberoed, violent jetting will occur. The modely descending convection currents must take air with them which, being expanded by the heat, immediately flies back, bringing with it lava drops which spin out the

Another indication of the convection currents and returning air is to le seen in the whirlpools which usually occur on the breaking up of the crust. Pieces of this crust are often seen to whirl round in a spiral as they descend into the vortex, and at the same moment jets of molten lava clots and rings are thrown up from the centre of it which coel to giass in the air, and which either fall back into the lake or on to the banks around. It is not easy to understand how the action of expanding vapors from below could produce these descending vortices, but returning beared air must be part of the process in the descent of the cooler liquid surtage layers and the resulting whirl-

With regard to the great lava fountain which I saw in 1873 at the bottom of the summit crater-and which exhibited the characteristic features of these lountains-I did not, and do not, consider it to have been caused either by vapors, by air, or by convection treits. The mechanical effects seen to be produced in this great fountain were, in my view, altogether different to those which would be produced by steam or expanding vapors, and of which I saw no evidence whatever; whereas, if these tremendous effects had been the result of steam, the evidence of it would have been clear, for the quantity of steam required, although it may have been superheated and invisible below, would have condensed in the cool atmosphere above. I look upon that fountain as a hydrostatic one purely; but Professor Dana cannot admit that

thing to do with it. He observes:

HAWAHAN VOLCANOES. lavas, so near the incredible, that we naturally look for other possible explanations. Hydrostatic pressure is out of consideration, inasmuch as the fountains are at the summit of the dome, and at times throw their jets 50 to 100 feet above the mountain's top—over 14,000 feet above the sea-level.";

† American Journal of Science, Vol. XXXVI., August 1888, pp. 88, 89.

But why should hydrostatic pressure be thrown out of consideration? It is true that we do not see the head Loa below the level of the bottom of the summit crater; but when the solid by the weight of the earth's crust, i only requires an opening to be made No one, then, is more competent to | would be called a pressure rather than are at a historical sketch of these a movement of the crust, and may be

or other volcanoes of the globe to any dead of the action of expanding va-pers, to which he assigns but a small may require; and this action is, in many instances, tremendous—as at Krakatoa and Tarawera. Hydrostatic oer, he useribes the jetting in the pressure first brings the molten lavas raise the molten matter on which the Mr. Brigham was led to conclude earth's crust rests to the tops of the roun his seeing so little vapor rising highest mountains of the globe. It is from the great lake during his visit, merely a question of the relative denrice is presented also by Mr. W. L. an opportunity presented to it to rise

any actual case be expected. If, then, we may follow such distinguished physicists and geologists as Beaumont, Cordier and Prestwich, Emerican Journal of Science, Vol. xxxv., in this view of the primary cause of volcanic action, the phenomena presented by Mauna Loa and Kilauca involve no insuperable difficulties, and there should be observed a certain sympathy in the action of the two volcanoes; not, as commonly expected, that when an outbreak takes place on the sides of Mauna Loa, Kilauea or rather Halemaumau, should commence to overflow, but, as best from below, and is exposed to reliation at its surface. These violent leads, the layer having gradually risen in Kilauea to a high level, an outflow somewhere on either mountain may occur. At the moment of with fever, shipping a new crew. Five such outflow the lavas in Kilauea either remain quiet-that is, do not rise-or they subside, just as a new flowing artesian well may lower the level of its neighbors. When the outflow on Mauna Loa ceases, the lavas in Kilauea commence to rise again, and presumably also, judging from results, those in the conduit of Mauna Los, under the constant, but slow, action of the pressure or weight of the earth's crust.

It is now a little over two years since the last cruption on Mauna Loa occurred- the outbreak at Kau of January 16th, 1887-during which time that mountain has made no sign. It is true that steam has been seen rising from the summit and from some of the fissures on the sides; but this may, and probably does, only mean that an extra quantity of rain-water or melting show has found its way to about the size of a clothes line across the the rocks beneath which retain some | sidewalk on Merchant street near the No lava has been known to be

pursuing its regular course, that is, foot from the ground. Any pedestrian the molten lavas have been rising who was walking rapidly would be alsteadily in Halemaumau, and bringing up its cone of debris with them, floating it bodily up with the floor of the great crater of this spot. The lava has not only, since the subsidence of March the 6th, 1886, filled up the great triangular pit then formed, but Malemaumau lava lake and those in the neighborhood subsidiary to it, have lately been from time to time pouring their contents over the general floor of the crater. Thus Kilanea is now fuller of solid lava than ever before known; and if the rise of the lavas and the outflows continue, they threaten to raise the southern end of the floor so much that the lava may overflow the outer

rim of the great crater.

W. L. GREEN. Honolulu, February 18, 1889.

Note.—The Hawaiian Government has sent for exhibition in the Hawaiian Department of the "Exposi- Yacht Squadron's yacht Nyanza retion Universelle" of Paris in May quired a captain he secured the position.

next, eleven sheets containing 77 The Nyanza sails Monday to continue next, eleven sheets containing 77 photographic views of Hawaiian active volcanic phenomena, commenc-ing in 1868. These were taken immediately after the events occurred, or while the lava was running, and one shows the fountains of the flow of 1887 in action. Amongst them are general views of the great crater of Kiluea at different dates, and the lava-lake hydrostatic pressure can have any- region in detail before and immediately after the subsidence of the lava "Is there any other source of the projectile action?" (Outside of va-

DRIVING ACCIDENT.

An Omnibus Full of People Capsized on the Pali Road-General Shaking Up but Nobody Seriously Injured.

Between 4 and 5 o'clock p. m., 18th inst. an omnibus from the Pantheon Stables drawn by six-in-hand left the Hawaiian Hotel with a large party of excursionists to the Nuuanu Pali. Dick Davis handled the three double of liquid above the fountain as we did | ribbons, having Jack Warner with him on the box.

The following comprised the party: Mrs. Evans, Mrs. Belau and brother, Mr. J. F. Siebe, of San Francisco; Col. Grannis, of Chicago; Lieut. Knappe, of the U.S.S. Alert, and wife; Mr. and Mrs. Moore, of Hamakua; Mr. and Mrs. H. kai and parts of Hawaii. Macfarlane, Miss Widemann, Miss Finekler, Miss Clara Low and Mr. W.M. Graham, manager of the Hotel, of this city. They enjoyed the trip to the Pali and the scenery of that locality very Wm. Kahlbaum......\$1,500

The vehicle rolled along merrily unt near the Half-way House. Then, o coming down the steep hill at that poin it was necessary to put on brakes, but the brake block's turned and there was no thing wherewith to check the momen tum. Davis felt his hands getting tire holding back the horses and gave the lines over to Warner. It was impossible however, for the latter to check the sible, but competent to effect the horses with the heavy load pushing the burning a period of 44 years. sible, but competent to effect the work. It is what in common parlance them. The animals swerved to one side and the omnibus went clean over on its "basalt volcanoes," as looked upon as a particular case in side. Nearly all the passengers were for be well exils them, or to offer an the principle or "primary cause" of the moment dazed by the shock, of the nature of the forces volcanic action adopted by Joseph but the horses' stopping short averted further danger. Mrs. Belat was under the fallen vehicle and had it been moved along the ground sh would certainly have fared very badly Col. Grannis, although here seeking re cuperation in health, and Miss Wide mann were the first to realize the situation. With a heroic effort they tilted up one side of the omnibus and released Mrs. Belau from her perilous position. Word was telephoned to town, car-

riages being ordered out for the passen gers, and Dr. Trousseau summoned to meet them at the Hotel. He and Dr. McGrew were there when the battered excursionists were brought in. Fortunately nothing worse than facial scratches and somewhat severe bruises required their treatment. Mrs. Belau was pretty sore from her experience. Col. Grannis had a deep scratch above one eye and Mr. Moore a similar wound in the cheek, and both were considerably bruised about the person. The Colonel and Miss Widemann strained themselves severely n the heavy lift above-mentioned. Mr. Macfarlane, who drove directly home, required Dr. Trousseau's attendance hiefly for a bruised leg, and will feel his njury the more on account of recent illness. The other members of the party were little the worse for the mishap. The drivers escaped almost unhart. There was not enough help near to bring

mibus home. It will need som erer, being too sore to move, so that he and Mrs. Moore were prevented returnhome by the Kinau as projected. ol. Grannis is another of those laid up. out his natural jollity asserts itself in

. ... An Old Acquaintance.

Captain Armstrong, formerly of the bark Kalakana, lately arrived in San Francisco with the bark Helen W. Almy, forty-nine days from Corinto. He left part of his crew at Panama in hospital Captain was down sixty-five days with notwithstanding. lever, his wife and two children being sick at same time. A girl was born to Mrs. Armstrong in Gulf of Fonseca, northern part of Nicaragna, 150 miles from any white inhabitants. Named the child Almy after the vessel. The mother wished it entered on the log that it was the brightest stormy petrel ever born on board of a ship. Captain Armstrong's other child was also born on board ship at sea, that being the chief event he had to report on arrival at Honolulu.

A Mantrap.

Some miscreant whose idea of sport consists of a desire to injure other people, Tuesday night stretched a piece of rope Kilauea, in the meantime, has been other around a telephone post at about a most certain to be tripped up and receive a bad fall. Our informant, who was fortunately walking slowly, simply came trick not being repeated with the same material, by removing the rope and carrying it away with him. It is now at the Advertiser office.

> New Captain for the Nyauza. The San Francisco Commercial News has the following paragraph. It will be

Nyanza from here to San Francisco: "Among the passengers recently arrived from Australia was Capt. John Carrington, who formerly commanded the well-known British ship Cape Clear. Capt. Carrington made numerous friends in this port and was en route for Eng-land, but hearing the British Royal her voyage around the world, and leaves this port with best wishes for her owner, Capt. Dewar, and her commander."

It Wouldn't Work. While a policeman was watching a captured colored man who had deserted from a whaler, on the Pacific Mail wharf in presence of the rupaway's skipper on pors.) "The lava-fountains of the summit crater are so marvelous in size, considering the density of the size, considering the size of t

BOARD OF EDUCATION.

A Protracted Session - Contracts for New Schoolhouses.

There was an extended meeting of the Poard of Education, occupying several hours, on Wednesday. Besides the transaction of ordinary business, some very important submissions from the country were discussed at length. Several teachers were assigned to positions. Orders for the erection of several new schoolhouses were passed, particulars of which are withheld until precise locations are determined. The Board had under consideration reports of the Inspector-General on his recent visitations of school districts on Mani, Lanai, Molo-

The following tenders for building new schoolhouses were opened by the Board at this meeting:

KAUNAKAKAI, MOLOKAI.

il	W. J. Kalu	1,498
110	S. P. Mio	1,170
	A. Burgess	1,025
t,	J. Cook	1,025
10	F. Archer	985
+	S. Malioe	975
n-	J. W. Ninihua	895
	S. N. Mai (accepted)	860
d		
ie	WAIKAPU, MAUI.	4 005
e,	Mamala	1,895
ie	Wm. Kahlbaum	1,890
	W. J. Kalu	1,666
g	J. L. King,	1,550
e	S. P. Mio	1,540
s	Jas. Wallace	1,450
	A. Burgess	1,400
)r	Levi Drew	1,340
ζ,	J. F. Ross	1,320
rt	S. N. Mai	1,300
u	F. Archer	1,290
d	J. W. Ninibua	1,260
0	P. A. Anderson (accepted)	1,185
	HAOU, HANA, MAUL	
	Mamala	1,975
•	Wm. Kahlbaum	1,900
1	W. J. Kalu	1,666
d	Jas. Wallace.	1,450
d	P. Kamaiku.	1,400
	J. F. Ross	1.390
	A. Burgess	1,375
	S. P. Mio	1,340
0	S. N. Mai	1,325
i	J. W. Ninihua	1,300
4	Lovi Drow	1 990

POKH, WAIMER DISTRICT, KAUAL 1,000

F. Archer Jas, Taylor E. Larsen (accepted) S. V. Mai.....

PLANTATION SALE.

Col. Spreckels Buys a Half Interest in Walkapu-Confidence in the Country.

A sale of the half interest in the Waikapu Plantation, owned by Major W. H. Mr. Moore is the greatest suf- Cornwell, has recently been made, the purchaser being Col. Claus Spreckels. The price has not been made public, but it is reported on the street that the figure for the half interest is about joking over his aches. The others still requiring nursing are Mrs. Belau, Miss Widemann and Mr. H. R. Macfarlane. \$120,000. The remaining half is held by G. W. Macfarlane & Co., and will probably be purchased by the same party. G. W. Macfarlane & Co., and will probably be purchased by the same party. Major Cornwell will continue to be the manager, as he has been since the death of his father. Waikapu is an incorporated company, 2,500 shares of \$100 each. The crop for the current year is about 1,000 tons. The purchase of this plantation by such a shrewd, far-seeing capitalist as Col. Spreckels, indicates that he has firm faith in Hawaiian sugar property, and that the proposed changes in more took sick after leaving Panama and the American tariff will not ruin our two were left in a Nicaragua hospital. The sugar planters, croakers to the contrary

New Fish-Preserving Process.

When the enterprise mentioned below gets under way, its promoters may count on business at Honolulu. Foreign fish with flavor unimpaired by the various means of keeping is unobtainable here: A press dispatch from New Haven says: Lieutenant Howard, of the United States Navy, of this city has organized a stock company for the purpose of establishing a salmon-fishing and fur-trading post in Alaska. The business of the company will be entirely different from that of any other companies now engaged in this trade. They intend neither to smoke nor can the catch, but instead, by means of a preservative, will be able to transof their heat from the last eruption. Mutual Telephone Office. One end of port fish in a perfectly fresh condition to the cord was fied to the fence and the the markets of San Francisco. By so doing the company expects to gain control of the market for salted figh. When fish now reach San Francisco they have lost their delicate flavor and bright pink color. The probable location of the company's establishment will be on the Yukon river.

Rhetorical Exercises.

The weekly rhetorical exercises at Oaliu College on Wednesday afternoon consisted of recitations by the young ladies and compositions by the male students. They were enjoyable to all listeners. Parents and friends of the students are always welcome at these remembered that Capt, Holland took the exhibitions. The programme on this occasion was as follows:

1. Recitation-"A Day in June' 2. Composition-" The Alphabet Ernest Lyman 3. Composition-"Tasmania" 4. Recitation-"Clerical Wit"...M. Mossman Composition-" Some Hawaiian Recitation—"Discipline". Emma Martin Composition—" Hawaiian Com-. Henry Lyman

California Horses. Admirers of choice stock will be surprised to learn that two California bred horses have recently been sold for \$50,000 each. The first sale was that of "Bell Boy" which made a trotting record of 2:14. He was purchased for the Eastern turf. The last mail brings the statement that 'Stamboul," owned by Senator Rose of Tuesday, the sailor bolted but only got a Los Angeles, has changed hands at the few yards when the officer had him again same price, \$50,000. His record is

Advertisements.

Pacific Hardware Co., L'd.

FORT ST., : : HONOLULU,

Have Just Opened

New Lines of Goods

Which will repay inspection.

In the Salesrooms on the second floor are many articles entirely new to this market.

Special Goods at Special Prices! Household Goods in Large Variety

Complete Lines

Hardware, Agricultural Implements, Etc., Plantation Supplies, Kerosene Oil of best quality.

PACIFIC HARDWARE Co., L'D., 1261 57-y

Manhattan Life

INSURANCE CO.

Of New York. Established 1850.

This old Company now offers to the Insuring Public its new

Survivorship D vidend Plan

Levi Drew. 1,280 F. Archer 1,260 Which affords all the advantages of Life Insurance during the earlier years of life, and at the same time makes a provision for old age, as the Policy-holder can surrender his Policy at the end of the Survivorship Dividend Period and receive its Full Value is Cash-thus combin-650 ing Investment and Protection.

> Any information cheerfully furnished.

JOHN H. PATY,

THERISDON

Iron and Locomotive Works,

Corner of Beal and Howard Streets,

Builders of Steam Machinery In all its branches.

Steamboai, Steamship, Land Engines & Boilers, High Pressure or Compound. STEAM VESSELS of all kinds built complete, with hulls of wood, iron or composite.

ORDINARY ENGINES compounded when ad-STEAM, LAUNCHES, Barges and Steam Tugs constructed with reference to the trade in which they are to be comployed. Speed, tonnage and draft of water guaranteed.

SUGAR MILLS and Sugar Making Machiners, made after the most approved plans. Also, all Boiler Iron Work connected therewith. WATER PIPE, of Boiler or Sheet Iron, of any size, made in suitable lengths for connecting together, or Sheets rolled, punched and packed for shipment, ready to be riveted on the

ground. HYDRAULIC RIVETING, Boiler Work and Water Pipes made by this establishment, riveted by hydraulic riveting machinery, that quality of work being far superior to hand work.

SHIP WORK, Ship and Steam Capstans, Steam Winches, Air and Circulating Pumps, made after the most approved plans. SOLE Agents and manufacturers for the Pacific Coast of the Heine Safety Boiler. * PUMPS-Direct Acting Pumps for irrigation or city works' purposes, built with the celebrated Davy Valve Motion, superior to any other

JOHN DYER Honofulu Room No. 3, upstairs, Sprecke_a' Block. Agent for the Hawn. Islands.

FILTER PRESSES.

PAAUHAU PLANTATION, Hawaii, March 9, 1888. Risdon Iron and Locomotive Works, San Fran-Gentlemen-We have used two of your 30chambered Filter Presses this season. They are convenient, easily handled and are working entirely to our satisfaction. I can recommend no improvement on them. Very respectfully yours.
(signed) A. Moone,
Wanager Pasuhau Plantation.

These Presses are being carried in stock in Honolulu and are sold at very low prices to meet the demand. A consignment is now on

Risdon Iron & Loco, Works. San Francisco JOHN DYER ... Room N . 3 Spreckels' Block, 82 1234 Agent for the Hawn, Islands.

DAVID B. SMITH

Manufacturers' Agent, Importer and Commission Merchant,

No. 28 Merchant St., : Honolulu. 1262 62-3m

THIS PAPER

TS KEPT ON FILE AT E. C. DAKE'S ADVER-TISING-AGENCY, 64 and 65 Merchant's Exchange, San Francisco, Cal., where contracts for a dvertising can be made for it.

Advertisements.

Hawaiian Fertinizing Co., Manufacturers of and Dealers in

Cane Fertilizers

BONE MEALS made to order; STABLE MANURE, rotted and mixed, ON HAND AND FOR SALE In quantities to suit.

A. F. COOKE, Manager. Factory, Honolulu, H. I.

The Liverpool and London and Globe

INSURANCE CO

[ESTABLISHED 1816.]

Takes Risks against Lors or Damage by Fire on Buildings, Machinery, Sugar Mills, Dwellings and Furniture, on the most favorable terms.

Bishop & Co.

S. FOSTER & CO.,

WHOLESALE GROCERS

PURCHASING AGENTS.

Sole Agents for Simpson's Top-o-Can Brand

Diamond Creamery

BUTTER.

THIS CELEBRATED BUTTER IS 1 of the finest quality, made upon the Danish and American systems combined. Packed in hermetically sealed tins, and

26 and 28 California St.

warranted to keep in hot climates.

SAN FRANCISCO, : : CAL. 168 1206-1y

NOTICE!



The Well-known Bk. Amy Turner Will be laid on the berth in

Boston for Honolulu In CHAS, BREWER & CO.'s Line of Packets,

To Sail in July Next!

Persons desiring to ship goods by this vessel will please forward their orders as early as possible to insure shipment.

For further information apply to C. BREWER & CO., Queen Street. Honolulu, Feb. 19, 1889. 1249 45-1m

MURRAY & LANMAN'S FLORIDA WATER

The Universal Perfume For the Toilet, the Bath and the Handkerchief.



In view of the attempts made recently by some unscrupulous dealers, to foist upon the public a worthless imitation, bearing the general outward appearance of the genuine, we call attention to the distinguishing marks of the genuine Murray & Landan FLORIDA WATER.

Each bottle of the genuine article bears on its neck the Trade Mark, which appears alongside this notice; and on each leaf of the pamphlet, which is wrapped around it, appears in faint water mark letters the words LANMAN & KEMP.

If either be lacking reject the article as spurious. DOWNING & SCHMIDT Wholesale Agents San Francisco, Cal.



SARSAPARILLA MANAGER STREET The Great Purifiers

119 1240-1y

Big G has given univercure of Gonorrhoes and Mf 4 only by the Brans Chemical Co.

Gleet. I prescribe It and feel safe in recommend A. J. STONER, M.D. PRICE, \$1.99.